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CHLORINE-RICH CALCIC AMPHIBOLES: THEIR CRYSTALLO-CHEMICAL PROPERTIES DEPENDING ON PETROGENETICAL ENVIRONMENT (ABSTRACT)

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Cl-rich (>3 wt %) calcic amphiboles are found in two kinds of petrogenetical environment. Type A is continental occurrence, which is closely related to high-grade metamorphism, *i.e.*, calcareous metamorphic rock, granulite, charnockite and skarn deposit in the amphibolite and the granulite facies terranes. Type B is submarine occurrence, which is closely related to ocean-floor metamorphism, *i.e.*, the metabasalts, metagabbro and metamorphosed ultramafic rocks from mid-oceanic ridges.

Cl-rich calcic amphiboles from both rocks (types A and B) are mostly higher than 0.9 in (Na+K) content, higher than 0.75 in $Fe^{2+}/(Fe^{2+}+Mg+Mn)$ ratio and higher than 1.9 in Al^{IV} content (total iron as FeO and O=23). Unit cell volume of Cl-rich calcic amphiboles is distinctly larger than that of Cl-poor calcic amphiboles.

Cl-rich calcic amphiboles from the rocks of type A are 0.6–0.95 in K/(Na+K) ratio, but those of type B are 0.05–0.5 in K/(Na+K) ratio. The low X_K values of Cl-rich calcic amphiboles of type B are due partly to very low K_2O content of submarine basic and ultrabasic rocks, and due partly to ocean-floor metamorphism by the fluids of near seawater salinity.

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